



Supplier Management for the Tracking and Data Relay Satellite (TDRS) Program

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Supplier Management*

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Overview



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- **In-depth investigation conducted prior to the TDRS K award**
 - Goal: determine problematic supplier areas and associated root causes
 - Performed by multi-disciplined “tiger team”
 - Took advantage of “Best of Boeing” Supplier Management
 - Solicited Supplier Feedback
- **Result: More focused, standardized and robust approach to Supplier Management**
- **TDRS K Program implemented multiple initiatives to improve supplier management, supplier quality and overall supplier performance**

IDS Supplier Management Focus Areas



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*Early
Supplier
Involvement*

*Contracting
and Risk
Management*

*Improve
Supplier
Performance*

- Market strategies and control points
- Strategic make/buy
- Enterprise capability sourcing strategies
- Enterprise supply chain strategies
- Capture & proposal strategy, execution and transition

- EAC / BAC
- Alignment to prime
- Affordability expectation
- Risks aligned and managed
- Leverage spend
- Terms and conditions
- Supplier diversity
- Strategic work placement
- Strategic agreements

- Supplier insight and control using Six Sigma
- Top 100 supplier performance improvement
- Supply base management
- Supplier partnership initiative lean engagements
- Common buy package
- Supplier program manager deployment

Create Opportunities – Capture Value – Ensure Performance

Key Initiatives Implemented on TDRS K



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- **Supplier Conferences held prior to award**
- **Standard Buy-to Packages**
- **Risk Management Requirements flowed to Subcontractors**
- **Supplier Data Tool (SDT) to manage SDRL process**
- **Supplier Program Managers assigned to key/critical subcontractors**
- **Supplier Enterprise Review Board**
- **Capability Assessments**

TDRS K Supplier Conferences



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- **Two Supplier Conferences held with proposed Supply Base:**
 - **Prior to Prime Contract award (2007)**
 - **After Program Systems Requirements Review (April 2008)**
- **Purpose:**
 - **Communicate programmatic requirements with emphasis on Customer-unique Mission Assurance Requirements (MAR)**

Standard Buy-to Packages



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▪ *What is it?*

▪ **Standard complement of requirements documents, including:**

- Subcontract Statement of Work (SSOW)
- Model Subcontracts (by contract type, if applicable)
- Terms and Conditions and Prime Contract Flowdowns
- Supplier Data Requirements List (SDRL) and Data Item Descriptions (DID) - tailored to include Program-specific requirements
- Product Specifications
- Other Applicable Documents including Product Assurance documentation tailored to include Program-specific MAR requirements

▪ *Why it's important*

- **Assures consistent and timely flowdown of requirements**
- **Ensures complete and accurate flowdown of program and customer requirements to supplier base**

Boeing Risk Management

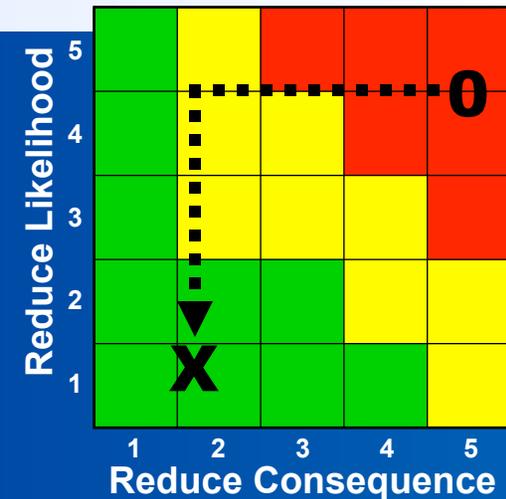
Requirements Flowed to Subcontractors



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Overview

- Standard Risk Management SDRLs flowed down in SSOW
 - Risk Management Plan
 - Risk Assessment – Monthly submittal
- Supplier Risk process managed jointly by Supplier, Shared IPT and Supplier Management
 - Review of monthly submittals
 - Weekly discussion of key subcontract risks
- Elevation of major supplier risks as Program-level Risks – determined by IPT



Why it's important

- Provides timely and consistent visibility into supplier risks and mitigation plans
- Ensures program and Customer visibility of critical risks and associated mitigation plans
- Provides mechanism for active management of program performance risks

Supplier Data Tool (SDT)



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▪ *What is it?*

- Secure web-based process for submittal and disposition of supplier data
- Establishes SDRL-based reviewers (Data Management, primary reviewer, functional reviewers, Export Compliance (as needed), and Procurement Agent)
- Electronically receives and routes data items through approval process
- Dispositions, comments, mark-up files, and resubmittal due date (if needed) are returned to the Supplier

▪ *Why it's important*

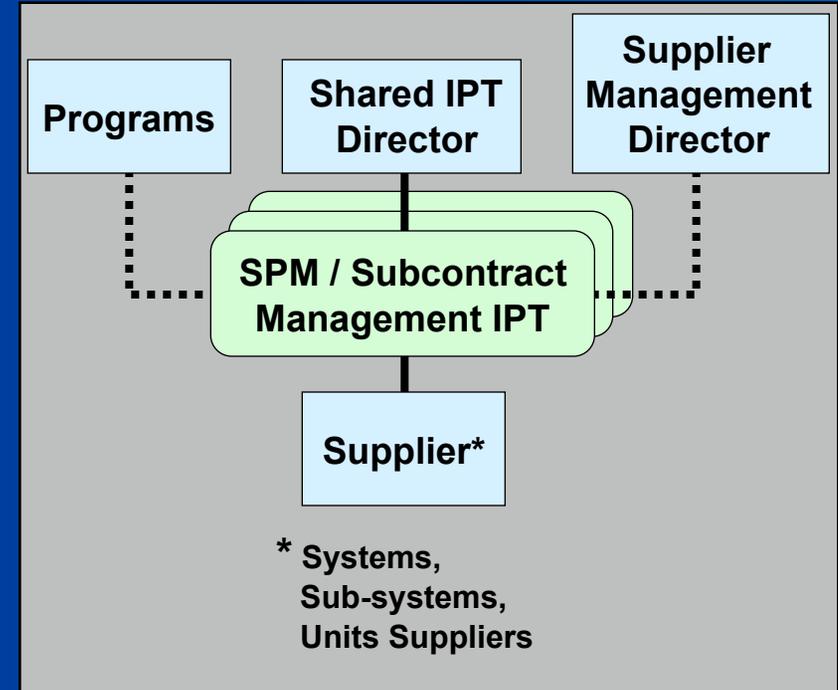
- Real-time access to SDRL review/approval status, reports, document access, and metrics
- Historical data retention and linkage to other systems

Supplier Program Manager



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- **Focused interface with the Supplier**
 - Held accountable for execution (2-way interaction: Boeing and Supplier)
- **SPM RAA:**
 - Responsible for Supplier execution and product integrity
 - Integrates and facilitates resolution of technical and business issues
 - Establishes and evaluates performance measures, metrics and leading indicators
 - Accountable for Supplier Improvement Plan and actions
 - Collaborates with Supplier to understand their capabilities related to program requirements & future growth



Formalized Through Program / Team Execution Plans

Supplier Program Managers Supporting TDRS K



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SPMs fully engaged on critical TDRS Subcontracts:

Structures

Ground System

RF Electronics

**Passive Microwave
Devices**

Propulsion

Solar Array

Ground Subcontract Management



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- **Integrated Boeing/Supplier Team environment established early in the proposal phase**
 - Roles, processes, and work scope developed as a team
 - Supplier integrated as an integral part of IPT
 - Supplier Program Manager (SPM) integrated within Shared IPT
 - **SPM has significantly improved supplier work execution**
 - Allows for focused attention to details of Supplier's execution
 - Early identification of potential problems – providing the opportunity for mitigation
 - **Integrated team continuously working to improve relationship**
 - Recently developed new, more efficient, SDRL process for Ground Segment
 - Continually tracking supplier performance via metrics

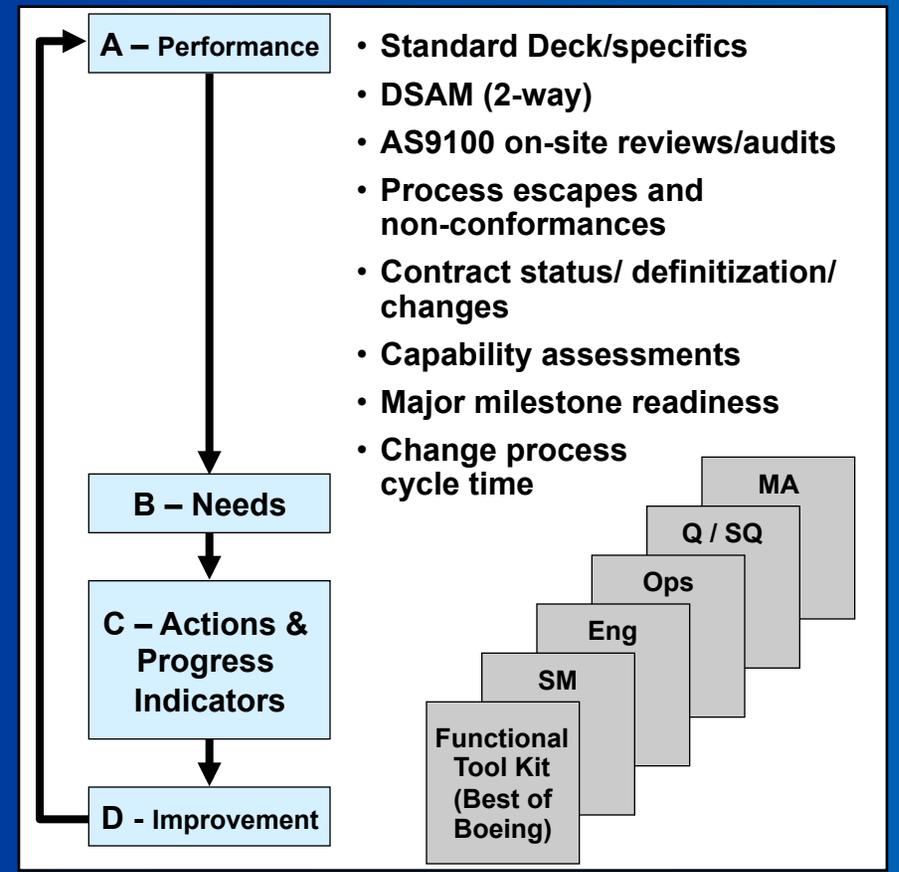
Supplier Enterprise Review Board (SERB)

Cross-Functional Review of Critical TDRS Suppliers



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- Review current contract area performance parameters
- Identify areas of greatest need
 - Problem statements
- Define improvement actions and determine best indicators to measure progress
- Document in Supplier Improvement Plan (SIP)
 - Draw from “*Best of Boeing*”



*Forum to Address Supplier Performance Issues
Affecting Multiple Programs including TDRS*

Capability Assessments

Focus Areas During Review



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- General Factory Controls
- Training programs and processes
- Quality Controls and Quality Processes
- Supplier Management/Control
- Configuration/Change Management
- Parts Materials and Processes (PMP)
- Planning Processes
- Assembly & Test Processes
- Manufacturing Engineering
- Supplier unique processes

Category	Section Lead	Focus Area Lead	Gap Assessment
Factory Controls			
ESD Controls			
Lab Maintenance			
Equipment Controls			
Calibration Controls			
Equipment Qualification			
Shelf Life Material Control			
Lab Environment Control			
Tool Control & Certification			
Alarms (humidity, temperature)			
Flight vs. Non Flight Control			
Tooling/Tool Control			
Packaging & Handling			
Safe Move Process			
Estimated Years of Experience			
Culture/RAA (Quality focus)			
Quality Control & Change Management			
Inspection Check Lists			
Audit of inspectors by Mfg Engineer/Process			
Work Instruction			
Escape Documentation			
MRB			
Photo Process			
Quality Metrics			
CABs/RCCA			
Quality Data Systems			
Move Safe Process			
Packaging & Handling			
Estimated Years of Experience			
Culture/RAA (Quality focus)			
Training			
Electronic Assembler Certifications			
Test Technician Certifications			
Inspector Training			
General Electronic Assembler Training School			
Command media - Training course code Documentation			
Chip Capacitor installation Training			
Jumper Wire installation Training			
Certifications recorded in centralized tracking system			
Certifications to space standard solder specifications (NASA & MIL-STD)			
Estimated Years of Experience with space qualified hardware			
Culture/RAA (Quality focus, stove-piped thinking, attention to detail)			
Planning Controls			
Planning Thoroughness			
Data Recording (temp. start/stop, torque values etc.)			
REA Work Instruction Review & Signoff			
Planner Certification Process			
Red Line Process			
Document Control (Storage & Retrieval)			
Drawing Clarity			
Configuration Management			
Planner Verification			
Engineering Change Release Process			
Packaging and Handling on drawings			
Estimated Years of Experience with space qualified hardware			
Culture/RAA (Quality focus, stove-piped thinking, attention to detail)			

Ensures ability to execute to Boeing / Customer standards Conducted on Key TDRS K Suppliers

TDRS Supplier Quality



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Program Mission Assurance team engagement encompasses the following:

- Quality Requirements Reviews – *in process*
- Mission Assurance flowdown validation – *in process*
- Parts, Materials and Processes review/approval – *in process*

Req	Subject/Question	Response	Response Classification / Comments	Result
20	Does Supplier have a Corrective Action (CA) process in place with the capability to:			
21	Does Supplier have a Corrective Action (CA) process in place with the capability to:			
22	Does Supplier have a Corrective Action (CA) process in place with the capability to:			
23	Does Supplier have a Corrective Action (CA) process in place with the capability to:			

Req	Subject/Question	Response	Response Classification / Comments	Result
13	Does Supplier have a Corrective Action (CA) process in place with the capability to:			
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Req	Subject/Question	Response	Response Classification / Comments	Result
1	Does Supplier have a Corrective Action (CA) process in place with the capability to:			
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11	Does Supplier have a Corrective Action (CA) process in place with the capability to:			
12	Does Supplier have a Corrective Action (CA) process in place with the capability to:			

Supplier Name	Best/09	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	2009
ADSON CORPORATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADSON CORP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADSON CORP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADSON CORP	0	0	0	0	0	0	0	0	0	0	0	0	0	0



- Quality Surveillance Plans
- Supplier Quality Surveillance
- Electronic Supplier Corrective Action Notification (ESCAN)
- Coordinate on Government Source Inspection

Summary



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▪ TDRS K benefits from advancements in Supplier Management

- Boeing Enterprise-wide initiatives and systems
- Common Boeing tools and processes
- Recommendations from solicited Supplier Feedback

▪ Results

- Standardized and robust approach to Supplier Management
- Early Supplier involvement and capabilities assessments
- Enhanced controls and tools provide increased focus and visibility into supplier progress, risks and issues
- Cost-effective oversight and management of subcontracts
- Significantly improved supplier performance despite increased percentage of procured hardware



*S&IS Supplier Management
focused throughout the program lifecycle*

